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November 9, 2015

CERTIFIED MAIL
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The Honorable Andy Berke
Mayor, City of Chattanooga
101 East 11th Street
Chattanooga, TN 37402

Re: **Compliance Evaluation Inspection – Desk Audit**
Municipal Separate Storm Sewer System (MS4)
NPDES Permit Tracking Number TNS068063

Dear Mayor Berke:

During September 2015, Division of Water Resources conducted a desk audit of the monitoring information submitted by City of Chattanooga's MS4 in order to comply with Sections 3.3 and 4.1 of its permit. A comprehensive review of your monitoring data was necessary in light of the fact that the current permit cycle expires on November 30, 2015. The purpose of the desk audit was to evaluate your compliance with the terms and conditions of its National Pollution Discharge Elimination System (NPDES) - MS4 permit, NPDES Permit Tracking Number TNS068063.

Permit Verification:

The City of Chattanooga separate storm sewer system has coverage under the NPDES which became effective on January 1, 2011 and will expire on November 30, 2015. The permit authorizes the City of Chattanooga to discharge its stormwater runoff from all portions of the MS4, in accordance with the stormwater quality management program, effluent limitations, monitoring requirements and other provisions as set forth in Parts I through IX of its NPDES permit, NPDES Permit Tracking Number TNS068063.

Background:

On May 1, 2015, DWR met with Chattanooga MS4 to discuss issues found in our review of monitoring data that had been submitted in order to satisfy requirements of Sections 3.3 and 4.1 of their permit. DWR informed Chattanooga MS4 that the data had not been collected according to TDEC Division of Water Pollution Control's Quality System Standard Operating Procedures (TDEC DWR QS SOP) which meant that the data could not be used to satisfy the requirements of Section 3.3.4. According to documentation we have regarding TDEC DWR's review and approval of their Comprehensive Monitoring Plan, the requirement to sample according to TDEC DWR QS SOP has been in the document since October 26, 2009. Chattanooga MS4 responded that they had sampled according to the way they were trained. DWR also informed them that the data submitted to satisfy the requirements of Section 4.1 also could not be used for the same reason. However, in the case of permit requirements contained in Section 4.1, Chattanooga MS4 still had time to resubmit data that would satisfy this requirement during this permit cycle. At the conclusion of the meeting Chattanooga MS4 assured DWR that the SOP would be followed in all future monitoring submittals, beginning with Fall 2015 monitoring.

Stormwater Monitoring Program requirements (3.3)

Wet weather monitoring (3.3.1)

- Requirement: Wet Weather Sampling of 5 homogenous landuse locations.
- Frequency: 3 storm events occurring at different seasons during each year.

Table 1. Wet Weather Monitoring of Homogeneous land use locations (3.3.1)

Type	Location	Waterbody	2010- 2011 (PY 1)	2011-2012 (PY 2)
Low density residential	On the wooded lot adjacent to 1418 Stratman Circle	Mackey Branch	1/5/11, 3/14/11, 5/3/11	10/28/11, 12/16/11, 3/22/12
High density residential	East Lake Apartments	Dobbs Branch	1/5/2011, 3/14/11, 5/3/11	9/16/11, 12/16/11, 3/22/12 and duplicate
Concentrated commercial	Gunbarrel Road at Landress Drive	Friar Branch	1/5/11, 3/14/11, 5/3/11	10/28/11, 12/21/11, 4/16/12
Light Industrial	Latta Street	Citico Creek	2/1/11, 4/11/11, 6/21/11	10/28/11, 2/1/12, 3/22/12
Heavy industrial	At the culvert at Hamm Road approx. 1500 ft from the inter-section of Hamm Rd and Manufacturers Rd	Tennessee River	1/25/11, 4/11/11	10/11/11, 2/1/12

Table 1. Wet Weather Monitoring of Homogeneous land use locations (3.3.1)		
Type	**2012-2013 (PY 3)**	**2013- 2014 (PY 4)**
Low density residential	8/13/12, 11/12/12, 3/5/13	11/26/13, 1/11/14, 3/3/14
High density residential	7/10/12, 12/10/12, 3/11/13	7/31/13, 1/11/14, 5/14/14
Concentrated commercial	8/13/12, 3/5/13, 4/24/13	9/25/13, 3/3/14, 5/14/14
Light Industrial	11/12/12, 1/30/12, 4/11/13	1/11/13, 3/3/14, 6/9/14
Heavy industrial	11/12/12, 1/30/12, 3/5/13	1/11/13, 3/3/14

In a letter dated July 2, 2015, the City of Chattanooga informed DWR that it did not complete the Wet Weather Monitoring requirements for PY 5 and proposed that they conduct this monitoring during 2015-2016. TDEC DWR agreed to the proposal.

In-stream ambient monitoring (3.3.3)

- **Frequency: annual**

Table 2. In-stream ambient monitoring (3.3.3)				
Waterbody	**2010-2011 (PY 1)**	**2011-2012 (PY 2)**	**2012- 2013 (PY 3)**	**2013-2014 (PY 4)**
Friar Branch (Derby Downs)	4/5/11	4/24/12 and duplicate	4/10/13	4/30/14
Friar Branch (Polymer Dr.)	4/14/11	4/26/12	4/18/13	5/20/14
Citico Creek	5/3/11	4/12/12	5/2/13	5/22/14
Dobbs Branch (Hickory St.)	4/20/11	4/17/12	4/23/13	5/6/14
Black Creek	5/3/11	5/3/12	4/30/13 and blank	5/8/14

Biological Monitoring (3.3.4)

- Requirement: 2 locations, Friar Branch, Dobbs Branch
- Frequency: spring and fall each permit year

Biological assessments were conducted at the specified frequency during the PY 1-4. However, they were not conducted in accordance with TDEC DWR QS SOP for Macroinvertebrate Stream Surveys so the data cannot be used to satisfy this permit requirement.

In previous discussions with the MS4 they stated that they were following one of the protocols in the SOP. There are two protocols that can be used to sample macroinvertebrates; Biorecon and Semi-Quantitative Single Habitat (SQSH). Neither of these protocols were followed according to the SOP.

Additionally, the MS4's Comprehensive Monitoring Plan dated April 6, 2011, specifically states that TDEC's DWR QS SOP for macroinvertebrate stream surveys (2006) would be followed, or the latest revision in the collection of this data.

Watershed characterization (3.3.5)

Requirement: Collect data to characterize the Friar Branch watershed.

Chattanooga MS4's Comprehensive Monitoring Plan Rev 2011 that was approved by TDEC DWR specified that the following data would be collected:

- During PY3 and PY4 (July 2012 to July 2014), Chattanooga collected flow characteristic data at 10 locations along Friar Branch.
- During PY3 and PY4, Chattanooga collected rainfall data using a tipping bucket raingage and data logger at 10 locations along Friar Branch.
- During PY3 and PY4, Chattanooga has collected concentrated E. coliform and Total suspended solids (TSS) data at 10 locations along Friar Branch.

Note: The MS4 program should thoroughly review all data that is collected and address any significant exceedances of water quality standards. For example, on August 22, 2012 at Derby Downs, Escherichia coliform was measured at 48,400. When MS4 staff encounter an outlier of this magnitude they should investigate, locate the source and document their findings. Unless they believe the data is incorrect in which case they should resample. In many cases, E. coliform data can be high after a rain event. However, in the case of Derby Downs, only 0.06" of precipitation was noted to have occurred in the past 72 hours prior to sample collection.

Field Sampling and Screening (3.3.6)

- Requirement: The city must inspect all cells identified in the grid system that contain a segment of the storm sewer system during the life of the permit
- Frequency:

Land Use category	System	Frequency
Industrial	0.25-mile grid	Twice per Permit Term
Heavy Commercial	0.25-mile grid	Twice per Permit Term
All other land uses	0.5-mile grid	Twice per Permit Term

Table 3. Field Sampling (3.3.6)				
	2010-2011 (PY 1)	**2011-2012 (PY 2)**	**2012-2013 (PY 3)**	**2013-2014 (PY 4)**
locations inspected	180	SC 154	SC 61	SC 129
		NC 4	NC 38	NC 34
		TN 79	TN 73	TN 62
		MC 9	MC 4	MC 15
		LC 41	LC 43	LC 14
		CIT 24	CIT 2	CIT 18
		CHAT 43	CHAT 13	CHAT 42
		WOLF 2	WOLF 0	WOLF 2
No Flow/ Flow	135/45	356/42	234/45	302/14
illicit discharges detected	2	8	2	1

Industrial Monitoring Program (3.3.7)

Industrial dischargers

- Requirement: collect wet-weather samples from four industrial dischargers: Citgo Terminal, Hunter Oil, Akzo Nobel, Chattem, Sequatchie Concrete (1st year only), NA Industries (1st year only)
- Frequency: Annual

Table 4. SW Monitoring of Industrial dischargers (3.3.7)				
	2010-2011 (PY 1)	**2011-2012 (PY 2)**	**2012-2013 (PY 3)**	**2013-2014 (PY 4)**
Citgo Terminal	3/2/11	11/17/11	7/6/12	8/12/13
Akzo Nobel	----	11/16/11	1/30/13	8/13/13
Sequatchie	2/1/11	----	----	----

Concrete				
NA Industries	4/15/11	----	----	----
Chattem Chemicals, Inc. (St. Elmo)	----	4/16/12	9/17/12	4/4/14
Hunter Oil	2/1/11	4/16/12	7/10/12	7/31/13

Municipal Waste management facilities (3.3.7)

- Requirement: collect Wet-Weather Samples Municipal Waste management Facilities: City Yards, Wood Recycling (N. Hawthorne), 36th St Landfill, Summit Landfill
- Frequency: Annual
- Conduct Visual inspection at Municipal Waste management Facilities: City Yards, Wood Recycling (N. Hawthorne), 36th St Landfill, Summit Landfill
- Frequency: Annual

Table 5. SW Monitoring Municipal Waste management facilities (3.3.7)				
Facility	**2010-2011 (PY 1)**	**2011-2012 (PY 2)**	**2012-2013 (PY 3)**	**2013-2014 (PY 4)**
Citywide services Outfall Outfall #1	1/25/11	11/3/11	12/10/12	9/25/13
Citywide services Outfall Outfall #2	1/25/11	11/3/11	12/10/12	9/25/13
Summit landfill	4/20/11	Not conducted*	10/1/12	8/13/13
N Hawthorne Street Wood Recycling Facility	4/20/11	12/5/11	7/10/12	6/9/14
36th Street landfill	1/18/11	10/13/11	12/10/12	11/26/13
Gunbarrel Pre PM				3/28/14
* MS4 staff were unable to collect sample during appropriate conditions				

Pesticide, Herbicide and Fertilizer Program (3.3.8)

PHF was conducted 9/29/14 at The Quarry Golf course and Cummings Cove Golf and Country Club.

4.1 Analytical monitoring

The permittee shall perform monitoring in streams with EPA approved and/or established TMDLs and impaired streams.

This item is incomplete as of the date of this letter. Currently, monitoring has been conducted (geomeans) on streams with EPA approved and/or established TMDLs, but the MS4 has not

collected data at all of the impaired streams. This deliverable also requires macroinvertebrate stream surveys. Again, Chattanooga MS4 must collect samples according to TDEC's DWR QS SOP for macroinvertebrate stream surveys. Be advised that Chattanooga MS4 still has time to meet this requirement.

Violations:

During this permit cycle, the following permit requirements were not met:

Wet Weather Monitoring (3.3.1)

- Only 2 samples were taken in the Heavy Industrial category during PY1.

Biological Monitoring (3.3.4)

- Data submitted for PY 1-4 was not collected according TDEC DWR QS SOP. Therefore, the biological monitoring requirement was not fulfilled for 4 of the 5 years in the permit cycle.

SW Monitoring of Municipal Waste management facilities (3.3.7)

- Summit landfill was not sampled during PY 2.

Required Action:

City of Chattanooga MS4 is required to complete the Wet Weather Monitoring requirements for PY 5 during 2015-2016.

Chattanooga MS4 must follow the TDEC DWR SOPs, as specified in their permit, in all future monitoring submittals beginning with Fall 2015 monitoring.

Requested Action:

Prior to December 31, 2015, City of Chattanooga MS4 must submit a GIS shape file to DWR. In light of frequent changes to MS4 boundaries, DWR requires updates and the City should submit a new shape file whenever changes occur.

Additional Comments:

The MS4 should conduct more thorough analysis of data (detection and elimination). Personnel should look at data critically and determine whether corrective actions are needed. They also need to document/demonstrate any steps taken to eliminate sources.

Although the data submitted to meet the section 4.1 requirement of the permit was not collected according to TDEC DWR SOP during the previous 4 years, Chattanooga MS4 still has time to meet this requirement if monitoring is conducted before December 1, 2015.

After you receive your new permit, please arrange a time to meet with Charles Walton, Biologist to discuss what monitoring is required. We believe it is advantageous for the City to coordinate with DWR on a regular basis to ensure that the monitoring is on track to meet permit requirements.

DWR believes that Chattanooga MS4 can make changes to their Comprehensive Monitoring Plan and still meet and still meet the monitoring requirements of the permit.

- Chattanooga MS4 is conducting an extensive list of monitoring. For example, Chattanooga MS4 has collected a lot of pathogen data in addition to the required geomeans. If the MS4 continually finds that E.coli at a sample location is above Water Quality Standards, further sampling in the area may be required as part of their IDDE program. If, on the other hand, a sample station is typically well below normal, additional monitoring is not required unless there is reason to believe the situation has changed. Additionally, Chattanooga MS4 can reduce the number of streams in its field screening matrix by dropping those streams that are typically dry during that season. For example, Chattanooga MS4 found no flow at over 90% of grids they visited during PY4.
- In the next permit application, Chattanooga MS4 should reevaluate the sites selected for Industrial stormwater monitoring because the impacts to receiving streams are negligible. For example, Akzo sends all of its stormwater to MBWWTP which means it does not discharge any stormwater to the MS4. Another example is Hunter Oil. This facility is very small and the receiving stream is distant from the facility. The facility discharges to ditch which is not a stream and except for storm events the ditch is dry throughout the year.
- In the next permit application, Chattanooga MS4 should request that PHF matrix include modern PHF chemicals such as Round UP™ and remove obsolete ones.

This letter provides a record of the Desk Audit of monitoring data provided to TDEC CHEFO DWR in order to satisfy Sections 3 and 4.1 requirements for PY1 -PY4.

We thank the City of Chattanooga for its efforts toward compliance with its NPDES permit. Furthermore, you have taken a proactive approach for protecting the stream and waterways of Tennessee. If you have any questions concerning either our inspection or this report, please contact Mr. Bascom at (423) 634-5710.

Sincerely,

Jennifer Innes
Environmental Program Manager
Division of Water Resources

cc: Mounir Minkara, Ph.D., Water Quality Manager, City of Chattanooga via email